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A. SIDNEY JOHNSTON CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210		EXAMINER ELALLAM, AHMED		
		ART UNIT	PAPER NUMBER	
		2662	49	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/053,237

Applicant(s)

COHEN, EARL

Examiner

AHMED ELALLAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,9,11,12,15-18,20,21,23,26,27,29-32,44-46 and 48-110 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 44,52,55,56,61-65,78-89,98,99,102,103,106 and 107 is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims rejected are 1-3,9,11,12,15-18,20,21,23,26,27,29-32,43,45,46,48-51,54,57-60,66-77,90-97,100,101,104,105 and 108-110.

DETAILED ACTION

This is responsive to Amendment filed on March 31, 2004

Claims 1-3, 9, 11, 12, 15-18, 20, 21, 23, 26, 27, 29-32, 44-, 46, 48-110 are pending.

Claims 1, 2, 3, 9, 11, 12, 15-18, 20, 21, 23, 26, 27, 29-32, 45, 48-51, 53, 54, 57, 58-60, 66-77, 90-97, 100, 101, 104, 105, 108-110 are rejected.

Claims 44, 52, 55-56, 61-65, 78-89, 98-99, 102, 103, 106, and 107 are allowed.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 66, 90-96 and 110 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 66, the specification as originally filed does not disclose that a processing engine designate a high bandwidth link to receive the packets. The processing engines do not provide the designation.

Regarding claim 90, the specification as originally filed does not disclose the feature of "distributing, in response to said type of service **and** in response to the hash result, said received packet to a selected processing engine". More specifically the specification as originally filed does not disclose that the processing engine selection is based on both the hash value and the type of service.

Regarding claims 91-95 depends from rejected claim 90, thus they are subject to the same rejection.

Regarding claims 96 and 110, the specification as originally filed does not disclose the feature of electromagnetic signals propagating on a computer network comprising instructions for execution on a processor.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. The term "tag application update on the packet" in claim 58 is a relative term which renders the claim indefinite. The term "tag application update" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 2, 9, 17, 18, 20, 21, 23, 26, 27, 29, 30-32, 45, 46, 48-51, 53, 54, 57, 66, 70-77, 90, 94, 95, 97, 100, 101, 104, 105, 108 and 109 are rejected under 35 U.S.C. 102(e) as being anticipated by Bellenger, US (5,802,054).

Regarding claim 1, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures (claimed flow indicia) to associate a frame with a sequence of frames traversing the switch. (Reads on a mechanism that performs a hashing function on a destination address portion of a network layer in the packets transferred to the routing system, to produce an indicia of a flow); See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20.

The switch router table in connection with the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (reads on means for switching packets with the same indicia of a flow to a single route processing engine of the plurality of route processing engines)

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 2, Bellenger with reference to figure 1, discloses a high speed Ethernet connection between the network switch and an end device (i.e.: LAN). (Corresponding to the routing system further comprising at least one fast uplink connection to an external network to accept outgoing packets from a plurality of processing engines).

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Regarding claim 9, Bellenger discloses that the network switch is scalable. See column 2, lines 41-48.

Regarding claim 17, Bellenger discloses, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures (claimed flow indicated by said hash). (reads on hashing a destination address portion of a network layer of at least one packet to

determine a hash result, said hash result indicating a flow;); See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20.

The switch router table 212 in connection with the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (reads on selecting one processing engine of said plurality of processing engines located within said router to process the flow indicated by said hash result).

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called

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frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 18, Bellenger discloses that the hashing tag consist of destination address of a link layer or network layer. See column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (reads on the network layer information comprises one or more of the following network in formation: a network source address of the at least one packet, a network destination address of the at least one packet, a source port of the at least one packet, and a protocol type value of the at least one packet).

Regarding claim 20, with reference to figure 5, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream. Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying this particular IP flow. (Corresponding to the hashing is computed by logically XORing an addresses, a port, and a protocol type value).

Regarding claim 21, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (Reads providing a table containing

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entries for use in selecting the one processing engine; selecting one entry in the table specified by an index value, the index value based upon the hash value to select the processing engine for the hash value).

Regarding claim 23, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (reads on distributing, in response to the hash function, the packets among the plurality of processing engine).

Regarding claim 26, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures (claimed flow indicated by said hash). (Reads on means for hashing a destination address of a network layer of the at least one packet to obtain a hash result); See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20.

The switch router table 212 in connection with the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-

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40. (reads on means, responsive to said hash result, for selecting said one processing engine of said plurality of processing engines located within said router to preserve a packet flow indicated by said destination address).

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claims 27 and 72, Bellenger discloses that the hashing tag consist of destination address of a link layer or network layer. See column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (Reads on the network layer flow information comprises: at least one of a network source address of the at least one packet, a network destination address of the at least one packet, a source port of the at least one packet, a destination address of the at least one packet, and a protocol type value of the at least one packet).

Regarding claim 29, with reference to figure 5, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream. Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying

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this particular IP flow. (Reads on the hash value is computed by logically XORing the addresses, the ports, and the protocol type value).

Regarding claim 30, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (Reads on means for providing a table containing entries for use in selecting the one processing engine; and means, responsive to the hash value, for selecting one entry in the table).

Regarding claims 31, 32 and 48, with reference to figure 5, Bellenger discloses a route table 416 that contains entries for use in selecting a switch port using a hash value from the hash generator 414, see column 12, lines 25-38. (Reads on the means for selecting carries out a hashing function that preserves the packet

Flow, as recited in claim 31, and the means for selecting carries out a hashing function that causes the packets to be distributed among the processing engines, as recited in claim 32, and data compiler distribute the packets among the plurality of processing engines as recited in claim 48).

Regarding claims 45, 70, 71, 73, 90, 97, 100, 101, 104, 105, 108, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

Physical port 204, (reads on an interface for receiving packet from a network);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures. See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (Reads on a data compiler as in claim 45, or a classification engine as in claim 97) to perform a hash function on a destination address of said received packet to generate a hash result, and to select a selected processing engine from said plurality of processing engines located within said router in response to said hash result);

BUS 210 in connection with switch router table and the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (Reads on a switch to distribute said packet to the selected processing engine).

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 46, with reference to figure 5, Bellenger discloses the table memory 416 in connection with the hash generator 414 for distributing the received packet to the proper switch port.

Regarding claims 49-51, 74-77, with reference to figure 5, Bellenger discloses that a series of hash codes is computed for various sections of the input data stream.

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Which bits are or are not included in each hash calculation is determined by a stored vector in a vector register corresponding to that calculation and that in the case of an IP packet (as example) the hash function starts at the 96th bit to find the "0800" code following the link-layer source address, it then includes the "45" code, 32 bits of IP source, 32 bits of IP destination, skips to protocol ID 8 bits, and then at byte 20 takes the source port 16 bits and the destination port 16 bits. The result is a 64 bit random number identifying this particular IP flow.

Regarding claim 53, with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising:

A plurality of switch ports 201-201-X, (reads on the plurality of a plurality of route processing engines located within said router);

Physical port 204, (reads on an interface for receiving packet from a network);

A flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist of a destination address at one of the data link layer or the network layer, a portion of the destination address, or hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures. See abstract, column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. (Reads on a data compiler to perform a hash function on a destination address of said received packet to generate a hash result, and to select a selected processing engine from said plurality of processing engines located within said router in response to said hash result);

BUS 210 in connection with switch router table and the arbiter 211, for routing the frame (packet) having the same tag to a selected switched port, see column 3, lines 24-40. (Reads on a switch to distribute said packet to the selected processing engine).

It is inherent that Bellenger put data into a packet digest form before transferring them to another switch port, because that is needed for the hashing to be performed on some field of the packet.

NOTE: the term frame of Bellenger is used in a generic sense as a unit of data transferred according to a network protocol, intending to include data units called frames, packets, cells, strings, or other names. See column 3, lines 66-67 and column 4, lines 1-3.

Regarding claim 54, with reference 3, when packets are received at a physical port, a hashing mechanism is applied on destination address of the packet to route the packet to another switch port as indicated above with reference to claim 45. (Reads on switch receiving said packet after said processing engine finishes processing said packet, and then the switch routing the packet to an interface to transmit the packet out to the network).

Regarding claim 57 and 94, Bellenger switch ports are for routing packets. Reads on processing engine perform routing of the packets).

Regarding claim 66, Bellenger with reference to figure 1, discloses a high speed Ethernet connection between the network switch and an end device (i.e.: LAN).

Regarding claim 95, claim 95 is computer readable medium implementation of rejected claims 17 and 71 and 90. Therefore claims 95 is rejected for the same reasons.

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Regarding claim 96, claim 96 is rejected for similar reasons as indicated in claim 95 above.

Regarding claims 109, claim 109 is computer readable media implementation of rejected claims 101, thus it is rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge, US (6,160,811) in view of Weaver et al, US (6,173,384).

Regarding claim 11, with reference to figure 1, Partridge discloses a routing system for distributing packets in a network comprising:

A plurality of network interfaces 20-32 that transfer packets from a source to a destination;

A plurality of forwarding engines 33-35, (reads on plurality of route processing engines located within said router);

A cross-bar switch 10 interconnecting the plurality of network interfaces and the forwarding engines (reads on a fabric interconnecting said plurality of network interfaces and said plurality of route processing engines);

Partridge also discloses that a forwarding processor is based on the data contained in the header portion of the received data packet. See column 2, lines 10-23 and column 5, lines 3-43.

Partridge does not explicitly disclose a hashing function to hash a destination address of a packet to determine a distribution of the packets by the fabric, in response to an output of the hashing function.

However, Weaver in the same field of endeavor discloses hashing destination addresses (indexing) for forwarding data associated with the destination addresses. See column 4, lines 58-67 and column 5, lines 24-50.

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to implement the hashing mechanism taught by Weaver in the process of selecting the forwarding engine of Partridge so that transfer of packet through the router of partridge would be much faster given the fast feature of hashing mechanism in accessing forward tables.

Regarding claim 12, Partridge discloses that the interconnection is a crossbar. See figure 1.

5. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Partridge in view of Weaver and further in view Hartmann et al, US (5,905,873).

Regarding claim 15, with reference to figure 1, Partridge discloses a routing system for distributing packets in a network comprising:

A plurality of network interfaces 20-32 that transfer packets from a source to a destination;

A plurality of forwarding engines 33-35, (reads on plurality of route processing engines located within said router);

A cross-bar switch 10 interconnecting the plurality of network interfaces and the forwarding engines (reads on a fabric interconnecting said plurality of network interfaces and said plurality of route processing engines);

Partridge also discloses that a forwarding processor is based on the data contained in the header portion of the received data packet. See column 2, lines 10-23 and column 5, lines 3-43.

Partridge does not explicitly disclose a hashing function to hash a destination address of a packet to determine a distribution of the packets by the fabric, in response to an output of the hashing function.

However, Weaver in the same field of endeavor discloses hashing destination addresses (indexing) for forwarding data associated with the destination addresses. See column 4, lines 58-67 and column 5, lines 24-50.

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to implement the hashing mechanism taught by Weaver in the process of selecting the forwarding engine of Partridge so that transfer of packet

through the router of partridge would be much faster given the fast feature of hashing mechanism in accessing forward tables.

Partridge in view of Weaver do not disclose a port adapter that converts input data to a desired interface.

However, Hartman with reference to figure 5, discloses a router system in which a port adapter 502 receives packet data having a first packet format and converts it to a generic packet format. See column 11, lines 3-18.

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to implement the port adapter of Hartman in the routing system of Partridge/Weaver so that routing of different protocol types of packets can be provided.

Regarding claim 16, Partridge discloses that the data port module 20-32 (interfaces) receives/transmit Internet packets, see column 3, lines 34-42.

6. Claims 59, 60, 67, 68, 91-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger.

Regarding claim 59, Bellenger discloses performing filtering on the packets, see column 14, lines 56-65 and column 15, lines 37-43.

Bellenger does not explicitly disclose that filtering is carried on the packet at the switch port.

However, it would have been obvious to an ordinary person of skill in the art to make implement the filtering at the switch port level as a design choice.

Regarding claim 60, Bellenger does not explicitly disclose in case of a switch port failure, packets are allocated to other switch ports for route processing. However bypassing an element of a switching system in case of failure is well known in the art. Examiner takes Official Notice that since such feature is well known in the art, it would have been obvious to an ordinary person of skill in the art, at the time the invention was made to provide the port switches Bellenger with one of known node-failure bypassing methods so that the port switches of Bellenger would be reliable.

Regarding claims 67, 68, 93, Bellenger does not disclose the port switch perform encryption or decryption on the packets as recited in respective in claims 67, 68 and 93.

However, Examiner takes official notice that packet encryption and decryption methods/apparatus are well known in the art. It would have been obvious to an ordinary person of skill in the art at the time the invention was made to enable the port switches of Bellenger with encryption/decryption method/apparatus so that transmitted packet to the external network can be undetected by intruders and received encrypted packet can be decrypted for further processing if that is needed.

Regarding claim 91, Bellenger discloses substantially all the limitation of the parent claim 90, except it does not disclose that performing compression.

However, Examiner takes official notice that packet compression is well in the art. It would have been obvious to an ordinary person of skill in the art at the time the invention was made to enable the port switches of Bellenger with compressing the received packet so that uplink bandwidth can be preserved.

Regarding claim 92, Bellenger discloses substantially all the limitation of the parent claim 90, except it does not disclose that performing decompression.

However, Examiner takes official notice that packet decompression is well known in the art. It would have been obvious to an ordinary person of skill in the art at the time the invention was made to enable the port switches of Bellenger with decompressing processing so that representative original data from received compressed packets can be recovered.

7. Claims 3 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellenger in view of Varghese et al, US (5,905,723).

Regarding claim 3 and 69, Bellenger discloses substantially all the limitations of claim 3 and 69, except that it does not disclose that the switch ports uses a crossbar for switching.

However, with reference to Fig .1 and 2, Varghese discloses a scalable routing system for distributing packets in a network, comprising a crossbar switch interconnecting the network interfaces and the FE (forwarding engines).

Therefore, it would have been obvious to an ordinary person of skill in the art, at the time of the invention to have the switching of Bellenger carried out using the crossbar switching of Varghese instead of bus switching so that switching of data would be much faster among the switching ports.

Allowable Subject Matter

8. Claims 44, 52, 55-56, 61-65, 78-89, 98-99, 102, 103, 106, and 107 are allowed.

Response to Arguments

9. The cancellation of claim 47 and the amendment to claim 48 overcame 35 U.S.C. 112 rejections.

Applicant's arguments filed March 31, 2004 have been fully considered but they are not persuasive:

Claims 16, 18, 48: the rejections of claim 16, 18, 48 under 35 U.S.C. 112, first paragraph has been withdrawn in view of the amendment.

Claim 54: the rejection of claim 54 under 35 U.S.C. 112, second paragraph has been withdrawn in view of the amendment.

Claim 66:

Regarding claim 66, Applicant stated that claim 66 recites a "high bandwidth uplink", and that a high bandwidth uplink is disclosed in the Specification at page 16 line 21 through page 17 line 4, and Figure I item 60. Applicant fails to show that the specification describes the limitation in claim 66, which is "*a processing engine designate a high bandwidth link to receive the packets*". The passage relied upon in the specification does not describe the feature of a processing engines designating a high bandwidth uplink. The passage relied upon states:

In step 118, the packet is put back on the Xbar 40 from the RPE 50. In step 120, the Xbar 40 transmits the packet to the Uplink 60. The Uplink 60 is a high-bandwidth PA with its own DC. Like a DC, the Uplink 60 is connected to the Xbar 40 via an Xbar

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link. However, in order to meet its bandwidth requirements, an Uplink 60 may require multiple Xbar ports. The Xbar 40 can support multiple Uplink 60 connections.

It is clear that the passage above is short of the designation feature as in claim

66. Examiner believes that the rejection of claim 66 is maintained as proper.

Claim 90:

In the previous office action Examiner rejected claim 90 under 112 1st Paragraph as containing new subject matter. Examiner indicated that the specification as originally filed does not disclose that the processing engine selection is based on both the hash value and the type of service. Applicant relied on the following passage (page 15 line 19 through page 16 line 10):

In step 116, the Xbar 40 transfers the packet to the destination RPE 50. There are multiple RPEs 50 connected to the Xbar 40 that provide both switching and services, including the high-touch type of services that may require a great deal of processing power. Such services may also be added later to the system as more services are developed and become available. Additional RPEs 50 can be added to the router system to provide additional processing power; this provides the scalability feature of the present invention. An RPE 50 receives a packet digest with a packet digest header containing classification information provided by the DC 30. Based on the classification information, the packet is put into one of a small number of input queues on the RPE 50. The intent of the RPE 50 queuing is to provide the capability for handling both high- and low-priority packets. Packets are processed from among the RPE's input queues by the RPE 50 processor in whatever order it sees fit.

Examiner respectfully disagrees with Applicant. The passage relied upon does not describe the processing engine selection is based on both the hash value and the type of service. Applicant further stated that "**using the hash result to select a**

processing engine, and using said type of service to select a queue within the processing engine is disclosed in the Specification". Examiner notes the priority queuing is equated with the type of service. However, dependent claims 91-94 recites other features other than the priority queuing (compression encryption decompression..). Therefore, The passage relied upon fails short of describing the feature of a processing engine selection is based on both the hash value and the type of service.

Claims 96 and 110:

Applicant argues that claimed Electromagnetic Signals propagating over a computer network is inherent in the skill set of a person of ordinary skill in the art of the invention, and therefore does not need to be disclosed in the present Specification. Examiner respectfully disagree, the inherency is not a change in phraseology or different wording to some feature that was already described in the original specification, see MPEP §2163.07. In addition, the inherency of Electromagnetic Signals propagating over a computer network is an indication that is the only way the Applicant invention can be done, which is not the case in accordance with the specification.

The argument of downloading software from the Internet is not related to the claimed subject matter. Therefore, given the above the U. S. C. § 112, first paragraph rejection is believed to be proper.

Claim 58:

Examiner indicated in the previous office action that the term "tag application update on the packet" in claim 58 is a relative term which renders the claim indefinite,

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and that the term "tag application update" is not defined by the claim, and the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Applicant argues that *"tag application update" is not disclosed in the specification*". Examiner notes that Applicant argument is not responsive to the issues raised with regard to the *"tag application update"*.

Claims 1, 2, 9, 17, 18, 20, 21, 23, 26, 27, 29, 30-32, 45-47, 49-51, 53, 54, 57, 66, 70-77, 90, 94, 95, 97, 100, 101, 104, 105, 108, and 109:

Applicant argues that Bellenger, U.S. (5,802,054) doesn't anticipate the above claims. Examiner respectfully disagrees.

Applicant more specifically argues that Bellenger doesn't disclose *"using his hash function to direct his packet to a selected route processing engine of a plurality of route processing engines"*. Applicant further stated that *Bellenger simply uses his hash function to access router tables*. Examiner respectfully disagree, Bellenger discloses with reference to figure 3, Bellenger discloses a flow switch node 200 (claimed router) for distributing packets from a source to a destination, the flow switch node comprising: a plurality of switch ports 201-201-X, which the Examiner interpreted as being the processing engines, and a flow detect 215 that generates an identifying tag for use in accessing the route table memory, the tags consist among other things (see claim 1 rejection above), a hash values based on one or more fields in control segments of the frame (packet), and that the tags preferably act as flow signatures, See abstract,

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column 3, lines 1-24 and column 10, lines 66-67 and column 11, lines 1-20. Bellenger switch router table in connection with the arbiter 211, is used for routing the frame (packet) having the same tag to a selected switched port (claimed selecting a processing engine), Examiner interpreted the selection of a switch port among the plurality of switch ports, as being the claimed "using the hash function to direct his packet to a selected route processing engine of a plurality of route processing engines". Examiner likes to note that not only Bellinger discloses using the hash value to select a switch port among switch ports, but goes a step further by disclosing how the hashing is implemented in selecting a switch port. Examiner notes that Applicant hash selection may need a table for selecting a processing engine, because once the flow indicia is determined by the hashing mechanism, a routing mechanism is needed for the selection, such as a routing table, memory or its equivalent.

Claims 11 and 12:

Applicant argues that neither Partridge US (6,160,811) nor Weaver et al. U.S (6,173,384) disclose the invention as in claims 11 and 12.

Applicant argues that: *"Partridge discloses a router having a matrix switch which both sends a packet to an output port and to a forwarding engine, where the forwarding engine sends the identity of an output port to the originating port"* and that *"Weaver discloses a method for searching for a record in a table in a memory of a computer system using a hash function. A hashing algorithm locates the record in the table"*.

Regarding the claimed subject matter, Examiner disagrees with Applicant.

Claims 11 and 12 are unpatentable over Partridge in view of Weaver. Because

Partridges discloses all the limitations of claim 11, except a hashing function to hash a destination address of a packet to determine a distribution of the packets by the fabric, in response to an output of the hashing function.

The feature that is not disclosed by Partridge is indeed taught by Weaver, and the combination of both teaching does anticipate claims 11 and 12.

Given the Examiner argument above, it is believed that the rejections above are proper.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (703) 308-6069. The examiner can normally be reached on 9-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2662
June 25, 2004



JOHN PEZZLO
PRIMARY EXAMINER